

CALIBRATION STANDARD REQUIREMENT
FOR AN
AUTOPROMPT CONVERTER
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PROCUREMENT PACKAGE

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CALIBRATION STANDARD REQUIREMENT FOR AN
AUTOPROMPT CONVERTER

1. SCOPE

1.1 Scope. This requirement defines the mechanical, electrical, and electronic characteristics for an AutoPrompt Converter. This equipment is intended to be used by Navy personnel in primary laboratories in the process of deadweight pressure calibrations. The AutoPrompt Converter provides assurance of consistent calibration by prompting the operator, recording vital data, and signaling when optimum conditions for an accurate reading are reached. For the purposes of this requirement, the AutoPrompt Converter shall be referred to as the APC.

2. APPLICABLE DOCUMENTS

2.1 Controlling Specifications. MIL-T-28800, "Military Specification, Test Equipment for use with Electrical and Electronic Equipment, General Specification for," and all documents referenced therein of the issues in effect on the date of this solicitation shall form a part of this requirement.

3. REQUIREMENTS

3.1 General. the APC shall conform to the Type II, Class 5, Style E requirements as specified in MIL-T-28800 for Navy shorebased use as modified below. The use of material restricted for Navy use shall be governed by MIL-T-28800.

3.1.1 Design and Construction. The APC design and construction shall meet the requirements of MIL-T-28800 for Type II equipment.

3.1.2 Power Requirement. The APC shall operate from a source of 103.5V to 126.5V at 50 Hz and 60 Hz \pm single-phase input power as specified in MIL-T-28800.

3.1.2.1 Fuses or Circuit Breakers. Fuses or circuit breakers shall be provided. If circuit breakers are used, both sides of the power source shall be automatically disconnected from the equipment in the event of excessive current. If fuses are used, only the line side of the input power line, as defined by MIL-C-28777, shall be fused. Fuses or circuit breakers shall be readily accessible.

3.1.2.2 Power Connection. The APC shall have an interface cable for capability of remote sensing. This cable shall be compatible with the Ruska model number 2465 Dead Weight Tester.

3.1.3 Dimensions and Weight. Maximum dimensions shall not exceed 16 inches in width, 7 inches in height, and 12 inches in depth. The APC weight shall not exceed 8 pounds.

3.1.4 Lithium Batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

3.2 Environmental Requirements. The APC shall meet the environmental requirements for a Type II, Class 5, Style E equipment with the deviations specified below.

3.2.1 Temperature and Humidity. The APC shall meet the conditions below:

	<u>Temperature (°C)</u>	<u>Relative Humidity (%)</u>
Operating	10 to 30	95
Non-operating	0 to 55	Not Controlled

3.2.2 Electromagnetic Compatibility. The electromagnetic compatibility requirements of MIL-T-28800 are limited to the following areas: CE01, CE03, CS01, CS02, CS06, RE01, RE02 (14 kHz to 1 Ghz), and RS03.

3.3 Reliability. Type II reliability requirements are as specified in MIL-T-28800.

3.3.1 Calibration Interval. The APC shall have an 85% or greater probability of remaining within tolerances of all specifications at the end of a 12 month period.

3.4 Maintainability. The APC shall meet the Type II maintainability requirements as specified in MIL-T-28800 except the lowest discrete component shall be defined as a replaceable assembly. Certification time shall not exceed 60 minutes.

3.5 Performance Requirements. The APC shall provide the following capability as specified below. Unless otherwise indicated, all specifications shall be met following a 30-minute warm-up period.

3.5.1 Measurement Range. The APC shall meet the following measurement ranges.

3.5.1.1 Temperature Measurement Range. The APC shall have a minimum temperature measurement range of 15 to 30°C (59 to 86°F).

3.5.1.2 Float Position Indicator Range. The APC shall have a minimum float position indicator range of ± 0.200 in. at a midfloat reference of 0.000 in.

3.5.2 Reference Pressure. The APCs reference pressure shall be user selectable between absolute or gage.

3.6 Operating Requirements. The APC shall provide the following capabilities.

3.6.1 Display. The APC shall have a display with a minimum of 4 lines with 40 or more characters per line.

3.6.1.1 Pressure Units. The APC shall display the following pressure units: psi, psf, Mpa, kPa, kg/cm^2 , mm Hg(0°C), in. Hg(0°C), mm H₂O (4°C), cm H₂O (4°C), in. H₂O (4°C), mb, atm, altitude (geopotential ft) and calibrated air speed (knots).

3.6.1.2 Sink Rate Display. The APC shall display the sink rate of the piston.

3.6.1.3 Float Display. The APC shall have a display that indicates the piston is floating with ± 0.060 in. at the 0.000 in. mid- float position.

3.6.1.4 Temperature Stability Display. The APC shall have a temperature stability display indicator.

3.6.2 Memory Retention. The APC's RAM shall be backed up by a battery source.

3.6.3 Data Set Retention. The APC shall meet the following data set retention requirements.

3.6.3.1 Piston/Cylinder Assemblies. The APC shall store at least six different piston/cylinder assemblies.

3.6.3.2 Mass Sets. The APC shall store at least two different mass sets of up to 32 masses each.

3.6.4 Keyboard. The APC shall have a Membrane, 4x6 matrix keyboard to input information.

3.6.5 Printer Output. The APC shall have a serial RS-232 printer port.

3.6.6 Menu Driven. The APC shall be a menu driven device that prompts the operator for input.

3.6.6.1 Unit Conversion. The APC shall convert user selected pressure to mass equivalents and mass to pressure equivalents.

3.6.6.2 Error Correction. The APC shall automatically correct for gas and oil pressure heads; type of gas or oil; density of gas or oil; surface tension effects; and gravity.

3.7 Manual. At least two copies of an operation and maintenance manual shall be provided. The manual shall meet the requirements of MIL-M-7298.

3.8 Compatibility Requirements. The APC shall be compatible with the Ruska model number 2465 Dead Weight Tester.